



BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking Regarding
Policies, Procedures and Incentives for
Distributed Generation and Distributed Energy
Resources.

Rulemaking 04-03-017
(Filed March 16, 2004)

**FUELCELL ENERGY
PETITION FOR MODIFICATION
OF DECISION 04-12-045**

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I. INTRODUCTION

In accordance with Rule 16.4 of the California Public Utilities Commission (“Commission”) Rules of Practice and Procedure, FuelCell Energy (“FCE”) respectfully requests that Decision 04-12-045 be modified to increase the limit of incentive payments available under the Self-Generation Incentive Program (“SGIP”) from the current cap of 1 MW to 3 MW.

Although projects up to 5 MW are eligible for participation in the SGIP, the limitation of incentives at the 1 MW level has suppressed participation of larger fuel cell projects. FCE and other program participants have relied on the SGIP as a critical channel for deploying new fuel cells and other renewable distributed generation projects throughout California, but an increase of the incentive cap to 3 MW is needed to stimulate the much needed market transformation for affordable fuel cell technology and other renewable distributed generation applications that are only economic at a larger scale.

In addition, the requested modification would result in new projects that would deliver substantial reductions in greenhouse gases. Consistent with California’s ambitious goals to decrease greenhouse gas (“GHG”) emissions per recent AB32 legislation, the augmented deployment of larger fuel cell systems, particularly fueled by renewable biogas, would yield

13,649 tons of additional annual GHG reductions for each incremental MW of fuel cells installed as a result of the increased incentive cap.

FCE respectfully requests leave under Rule 16.4(d) to file this Petition for Modification more than a year following issuance of Decision 04-12-045. This request is based on experience gained over the six year history of the SGIP, and therefore could not have been filed within a year of Decision 04-12-045. In accordance with Rule 16.4(b) FCE has appended to this Petition the Declaration of William Karambelas describing the need for incentives for projects sized between 1-3 MW and the market growth potential associated with such projects, particularly at wastewater treatment plants. In accordance with Rule 16.4(b), FCE has also appended to this Petition its recommendation for specific language for implementing this request. FCE was not previously a party to this proceeding because its interests were adequately represented by others in earlier stages of this proceeding and its predecessors, but as a company actively engaged in the manufacture and sale of fuel cells, FCE is directly affected by Decision 04-12-045 generally, and the 1 MW cap on SGIP incentives in particular.

II. BACKGROUND

The SGIP program was created to encourage the development and commercialization of new distributed resource technologies. The Legislature and Commission authorized monetary incentives for demonstrably viable technologies, recognizing that without such incentives new emerging technologies would not be cost-effective and would not be able to find markets in California.

In implementing the SGIP program in 2001, the Commission initially limited both the size of eligible projects and incentives to 1 MW, reasoning that this size limit “represents a fairly large installation for a single customer site and, at the same time, will not use up an unreasonable

amount of program funding.”¹ Since then, the Commission has continued to adjust and update the SGIP program to reflect experience gained over the years and new information regarding potential technologies and markets.

For example, in Decision 02-02-026 the Commission increased the 1 MW project size limit to 1.5 MW, recognizing that the 1 MW limit might “inadvertently deter customers from purchasing the more efficient, less polluting gas-fired distributed generation technologies” because those technologies are sized somewhat higher than 1 MW. Similarly, in Decision 04-12-045 the Commission again adjusted the project size cap upward to 5 MW, once more recognizing that “[i]ncreasing capacity size will allow developers, customers, utilities, and ratepayers to receive cost savings achieved by larger projects.”²

The Commission has thus far chosen not to similarly increase the cap on incentives, due to concerns about depleting limited SGIP budgets.³ However, the Commission has not ruled out such changes, and has shown an ongoing willingness to make appropriate program adjustments in order to achieve program goals and to take advantage of new opportunities to build on the progress already achieved through SGIP.

Fuel cells are one of the distributed technologies specifically earmarked for development through the SGIP. Fuel cells are specifically identified in the SGIP statute,⁴ and are specifically identified as an “eligible technology” under both Level 2 (renewable) and Level 3 (non-renewable) of the SGIP.⁵ As discussed below, the market for fuel cells in California has grown as a result of the SGIP, but is significantly constrained, particularly in the waste treatment and other potential markets, by the cap limiting incentives to 1 MW.

¹ D.01-03-073 at 29.

² D.04-12-045 at 9.

³ See, e.g. D.04-12-045 at 9.

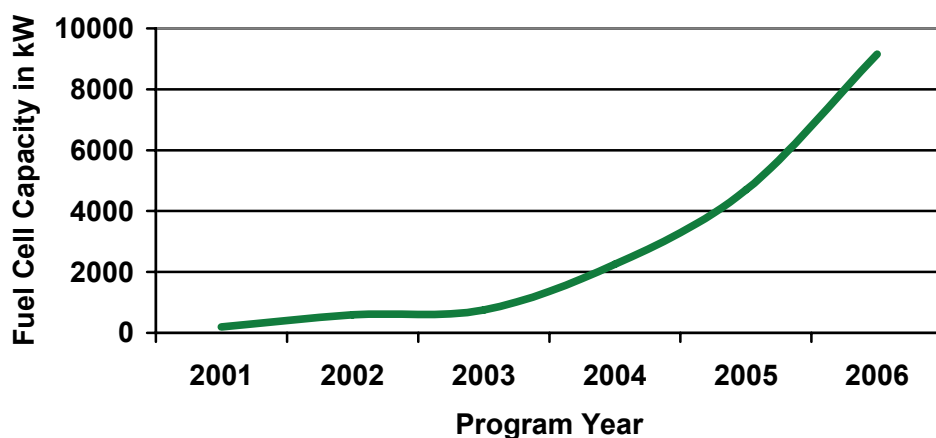
⁴ See PU Code § 379.6(b).

⁵ See Self-Generation Incentive Program Handbook, section 3.1.

III. The Commission should increase the SGIP incentive cap from 1 MW to 3 MW.

A. The SGIP program has proven itself, and the time is right to build on past SGIP successes.

With the evolution of the SGIP since its 2001 launch, participation of fuel cell projects has grown steadily in both generation capacity and number of active projects. Most recently, PY06 witnessed the highest level of participation with a total of 9,150 kW in committed projects. The following table illustrates the rate of growth in fuel cell deployments within the SGIP.⁶



While the SGIP program has been successful, FCE's experience in the growing fuel cell market suggests that a clear need exists for the elevation of the incentive cap from 1 MW to 3 MW. Based primarily on feedback from operators of both industrial facilities and wastewater treatment plants, FCE is confident that this modification will result in significant deployments of new fuel cell power plants at these sites that would not be possible otherwise.

B. An increase in the incentive cap is needed in order to cost-effectively develop the market for fuel cell technology at waste treatment plants and other host facilities that need larger scaled projects.

Along with the steady growth in fuel cell deployments via the SGIP, FCE has noted that the most prominent emerging market sector for this technology is municipal wastewater

⁶ www.sdenergy.org/uploads/Selfgen_Statewide_Data_Nov06.xls

treatment plants. Of the total 17,650 kW in SGIP fuel cell projects, 7,850 kW, or roughly 44% were implemented by wastewater treatment plant operators.

Fuel cells' higher electrical efficiency (47% versus turbines in the high 20's and IC engines in the low 30's) enables them to deliver almost twice the electrical output for each unit of gas consumed. Cognizant that each community must invest significant public funds to cover the energy costs of treating its bio-solids, it is incumbent upon plant operators to utilize the gas derived from the waste stream by the most efficient means available. The investment in fuel cell technology provides a greater benefit to communities by eliminating combustion emissions (created by either a flare or operation of IC engines and turbines) and by releasing public funds that are ordinarily applied to plant energy costs.

Many wastewater treatment plant operators have acknowledged their interest in fuel cell technology as an alternative to established combustion technologies. The emerging presence of siloxanes in the influent waste stream has caused many catastrophic failures in IC engines and turbines. Fuel cell installations in wastewater plants have demonstrated the ability to overcome the problems associated with siloxanes and other contaminants that can destroy competing technologies. Ultimately, several larger wastewater treatment operators have indicated a clear desire to implement fuel cell projects. However such operators' need for more than 1 MW of capacity and accompanying SGIP funding has unfortunately discouraged further interest in program participation. In some cases, gas derived from these community waste streams continues to be burned in flares and continues to be a costly liability for the surrounding population. An increase in the incentive cap to 3 MW would result in significant conversions of municipal wastes from a costly pollution source to a highly efficient ultra-clean energy source.

Early deployments of fuel cells within wastewater treatment plants further revealed problems associated with the use of aftermarket digester gas treatment and cleaning systems. Two prominent projects at plants in Santa Barbara and Palmdale served as valuable learning experiences for FCE. These projects demonstrated the need for FCE to exercise more control over the fuel treatment system and its ongoing maintenance. The fuel treatment systems operated at these sites are serviced by others and their reliability issues resulted in a poor characterization of fuel cell performance in the most recent SGIP impact evaluation.

Consistent with this effort to exercise more control over the fuel cell's digester gas treatment system, an increase in system size has also been identified as a remedy to the operational problems noted at Palmdale and Santa Barbara. For smaller projects operated on renewable biogas, the cost of the fuel treatment system represents a significant proportion of the project cost. Larger projects are better able to deliver a more cost effective solution to the wastewater operator, as the cost of the fuel treatment system becomes less significant as size increases.

While past SGIP participation has demonstrated the effectiveness of fuel cells in wastewater treatment applications, the same potential for public benefits also exists for landfill gases, agricultural biomass, and food wastes, all areas in which increasing the cap on incentives is also likely to increase market development.

C. An increase in the SGIP incentive cap would be consistent with the intent and purpose of the SGIP.

The fundamental intent of the SGIP is the production of sizeable public benefits in the form of electrical peak demand reductions. With six full program years of robust participation from all forms of distributed generation technologies, fuel cells have categorically proven themselves to be an effective means for delivering reliable peak demand reductions of the

highest order. By enabling larger scale projects to receive commensurate incentives under the SGIP program, the Commission will be taking the next step toward encouraging new markets for the fuel cell industry in particular (and other technologies that can similarly take advantage of this opportunity). In return, the state of California will receive a demonstrable contribution to peak demand reduction at a time that the state is projecting an unmet need for peak resources.

A secondary purpose of the SGIP is proliferation of environmental benefits, most notably derived from renewable energy projects. Among participating renewable energy projects, fuel cells have further demonstrated measurable efficacy in their ability to simultaneously deliver continuous 24-hour environmental benefits along with high peak demand reductions. Again, this demonstrated benefit has so far only been exploited with respect to projects that can be economically developed under the 1 MW cap. Increasing the incentive cap will introduce commensurate benefits from larger scaled projects.

D. An increase in the SGIP incentive cap will provide a significant contribution to net greenhouse gas reduction.

As noted in the most recent SGIP Impact Report, renewable fueled fuel cells attained the highest net GHG reduction of any participating SGIP technology including the acknowledged GHG impacts of both wind and solar. The ability of fuel cells to capture and utilize biogas in lieu of its use in either flares or combustion combined with the inherent near-zero emissions capabilities of fuel cells delivered a superior factor of 1.59 tons of GHG reductions per MWh.⁷

Thus, each MW of SGIP Level 2 incentive delivers a documented 13,649 tons of annual GHG reductions. Based on the proven demand for larger fuel cell systems within the biogas markets (primarily wastewater treatment plants and agricultural biomass sites), increasing the

⁷ "CPUC Self-Generation Incentive Program Fifth Year Impact Evaluation – Final Report" prepared by Itron, Inc. (March 1, 2007) pages 1-13 and 5-33. Available at http://www.sdenergy.org/uploads/SelfGen_Fifth_Year_Impact_Report.pdf

cap on SGIP incentive levels from 1 to 3 MW will encourage the development of new markets for a technology that is optimally situated to offset GHG emissions.

IV. The potential benefits to host customers and ratepayers clearly justify increasing the SGIP incentive cap from 1 to 3 MW.

While FCE is cognizant of concerns regarding the need to conserve program funds, the significant benefits associated with a modest increase in the incentive cap justify this program change and outweigh funding concerns.

Examining first the potential benefits, FCE notes that the increase in incentives from 1-3 MW would open up new markets for fuel cells. In particular, larger fuel cell projects at municipal wastewater plants could be implemented at the 1-3 MW incentive level, benefiting ratepayers by maximizing the return on investment of local tax dollars and increasing the potential reduction in combustion emissions, with associated environmental benefits. Host customers at these sites would also benefit via reduction of emissions costs associated with the applicable air quality management district permits. These benefits would not be limited to wastewater applications, however. The proposed incentive cap increase would enable a greater market transformation for fuel cell technology (and other eligible technologies) across the board. FCE as well as other manufacturers are best able to reduce product costs via larger production volumes. Economies of scale are recognized in raw material procurement and production labor when a higher volume of fuel cells are being manufactured and sold. These lower costs would enable a greater proliferation of fuel cell technology and other eligible technologies throughout California.

At the same time, no increase in the administration costs of the SGIP would result from this modification, and its implementation would require no other accompanying modifications. Ratepayers would continue to derive the same benefits from the SGIP that have been identified

throughout its existence, except that the potential for new applications for fuel cells and other technologies that can only be economically marketed if sized over 1 MW will be augmented, benefiting not only ratepayers but all citizens of the state through an improved environment and additional peak generation.

The only potential down side associated with raising the incentive cap to 3 MW is the possibility that a significant number of projects would participate in the SGIP at the 2-3 MW level, and the program funds could be depleted more rapidly than they would otherwise. If this occurs, fewer projects would be implemented and fewer host customers could participate in the SGIP and derive its benefits unless the Commission increases overall funding for SGIP. FCE recognizes the possibility that larger projects may alter the overall number of projects in SGIP or trigger a need for additional funding, but submits that such concern is outweighed by the benefits discussed above, particularly in light of the fact that the SGIP program has now been in effect for six years, and should be changing in a way that brings in new markets. If the Commission is concerned about the impact of raising the MW cap, FCE recommends that the Commission authorize additional funding to support such additional SGIP allocations per program year, and that the Commission leave open the possibility of implementing additional mitigation measures if needed after observing the impact, if any, raising the cap has on program participation by small projects during the first year or two of implementation.

V. Conclusion

For the reasons discussed herein, FuelCell Energy requests that the Commission modify Decision 04-12-045 to raise the SGIP incentive cap from 1 to 3 MW.

July 27, 2007

Respectfully submitted,

/s/

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RECOMMENDED CHANGES TO DECISION 04-12-045

- On page 9, delete: “However, we will continue to limit incentive payments to 1 MW of capacity. We share PG&E’s concern that increasing incentive payments from 1 MW to 5 MW would allow only a few projects, particularly Level 3 technologies, to receive incentives before depleting a program administrator’s entire annual budget.”
- In its place, insert: “In order to encourage the development of larger scale projects that are currently unable to participate in SGIP due to the 1 MW cap on incentives, we will raise the cap to 3 megawatts.”
- In Finding of Fact 6, replace “but retaining incentive payments up to 1 megawatt...” with “and authorizing incentives up to 3 megawatts...”
- In Conclusion of Law 4, replace “but retain incentive payments only up to 1 megawatt” with “and authorize incentive payments up to 3 megawatts.”

DECLARATION OF WILLIAM KARAMBELAS

1. My name is William Karambelas. I am Vice President of Business Development, Western Region, of Fuel Cell Energy, Inc. My business address is 27068 La Paz Road #470, Aliso Viejo, CA 92656.
2. There is a significant potential market for larger (1-3 MW) fuel cell applications in California. However, this market cannot be effectively tapped in the absence of monetary incentives.
3. One important potential market is wastewater treatment plants. I am personally aware of many wastewater treatment plant operators that have an interest in fuel cell technology as an alternative to established combustion technologies.
4. Fuel cells' higher electrical efficiency (47% versus turbines in the high 20's and IC engines in the low 30's) enables them to deliver almost twice the electrical output for each unit of gas consumed.
5. The emerging presence of siloxanes in the influent waste stream has caused many catastrophic failures in IC engines and turbines. Fuel cell installations in wastewater plants have demonstrated the ability to overcome the problems associated with siloxanes and other contaminants that can destroy competing technologies. Several larger wastewater treatment operators have indicated a clear desire to implement fuel cell projects. However such operators' need for more than 1 MW of capacity and accompanying SGIP funding has unfortunately discouraged further interest in program participation. In some cases, gas derived from these community waste streams continues to be burned in flares and continues to be a costly liability for the surrounding population. It is my professional opinion that an increase in the incentive

- cap to 3 MW would result in significant conversions of municipal wastes from a costly pollution source to a highly efficient ultra-clean energy source.
6. The fuel cell industry is growing and learning from its experiences, particularly in the wastewater treatment area. For example, FCE's early deployments of fuel cells within wastewater treatment plants revealed problems associated with the use of aftermarket digester gas treatment and cleaning systems. Such problems at two prominent projects at plants in Santa Barbara and Palmdale demonstrated the need for FCE to exercise more control over the fuel treatment system and its ongoing maintenance. The fuel treatment systems operated at these sites are serviced by others and their reliability issues resulted in a poor characterization of fuel cell performance in the most recent SGIP impact evaluation.
 7. Consistent with this effort to exercise more control over the fuel cell's digester gas treatment system, an increase in system size would help remedy the operational problems noted at Palmdale and Santa Barbara. For smaller projects operated on renewable biogas, the cost of the fuel treatment system represents a significant proportion of the project cost. Larger projects are better able to deliver a more cost effective solution to the wastewater operator, as the cost of the fuel treatment system becomes less significant as size increases.
 8. The augmented deployment of larger fuel cell systems, particularly fueled by renewable biogas, would yield 13,649 tons of additional annual GHG reductions for each incremental MW of fuel cells.
 9. While I have described above the need for increased SGIP incentives in order to encourage growth in the wastewater treatment market, I believe the same potential for

market growth and associated increase in public benefits also exists for fuel cells associated with landfill gas facilities, agricultural biomass, and food wastes.

I hereby affirm, under penalty of perjury, that the above statements are true and correct to the best of my knowledge, and I would be willing to testify to the above if called upon to do so.

Dated this 31st day of July, 2007, at Aliso Viejo, California.

/s/
William Karambelas

Certificate of Service

I hereby certify that I have this day served a copy of “FuelCell Energy Petition For Modification Of Decision 04-12-045” on all known parties to R.04-03-017 by transmitting an e-mail message with the document attached to each party named in the official service list. Parties without e-mail addresses were mailed a properly addressed copy by first-class mail with postage prepaid.

Executed on July 31, 2007 at Sacramento, California

_____/s/____

Karen A. Mitchell

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